

AMENDMENTS TO THE CLAIMS

Please amend claims The below listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A recombinant yeast cell which comprises:

a heterologous G protein-coupled receptor (GPCR) expressed in the cell membrane of said yeast cell such that signal transduction activity via said receptor is modulated by interaction of an extracellular region of the receptor with an extracellular signal, said heterologous GPCR acting as a surrogate for an endogenous yeast pheromone receptor in a pheromone response pathway of the yeast cell; and

a chimeric G protein subunit which comprises

an endogenous yeast Gpa1 subunit having C and N terminal amino acids in which ~~at least~~ the last four to six C-terminal amino acids of said Gpa1 are replaced with ~~at least~~ the last four to six C-terminal amino acids of a first heterologous G protein subunit, and in which the N-terminus of said Gpa1 is ~~operably~~ linked to ~~at least~~ the first ~~five~~ one to eleven N-terminal amino acids of a second heterologous G protein subunit, wherein said first and second heterologous G protein subunits are the same or different;

such that expression of said chimeric G protein subunit functionally integrates said heterologous GPCR into the pheromone response pathway of said yeast cell; and wherein modulation of the signal transduction activity of said heterologous GPCR by an extracellular signal provides a detectable signal.

2-52. (Cancelled)

53. (Currently amended) A recombinant yeast cell which comprises:

a heterologous G protein-coupled receptor (GPCR) expressed in the cell membrane of said yeast cell such that signal transduction activity via said receptor is modulated by interaction of an extracellular region of the receptor with an extracellular signal, said heterologous GPCR acting as a surrogate for an endogenous yeast pheromone receptor in a pheromone response pathway of the yeast cell; and

a chimeric G protein subunit comprising an endogenous yeast Gpa1 subunit having C and N terminal amino acids in which ~~at least~~ the last four to six C-terminal amino acids of said Gpa1 are replaced with ~~at least~~ the last four to six C-terminal amino acids of a first heterologous G protein subunit, and in which ~~at least~~ the first ~~five~~ one to eleven N-terminal amino acids of said Gpa1 are replaced with ~~at least~~ the first ~~five~~ one to eleven N-terminal amino acids of a second heterologous G protein subunit, wherein said first and second heterologous G protein subunits are the same or different; such that expression of said chimeric G protein subunit functionally integrates said heterologous GPCR into the pheromone response pathway of said yeast cell; and
wherein modulation of the signal transduction activity of said heterologous GPCR by an extracellular signal provides a detectable signal.

54. (Original) The yeast cell of claim 53, wherein said chimeric G protein subunit comprises an endogenous yeast Gpa1 subunit in which the last five C-terminal amino acids of said Gpa1 are replaced with the last five C-terminal amino acids of a first heterologous G protein subunit, and in which the first five N-terminal amino acids of said Gpa1 are replaced with the first 11 N-terminal amino acids of a second heterologous G protein subunit, wherein said first and second heterologous G protein subunits are the same.

55-56. (Cancelled)

57. (Previously presented) The yeast cell of claim 1, wherein in said chimeric G protein subunit, the last five C-terminal amino acids of said Gpa1 are replaced with the last five C-terminal amino acids of a heterologous G protein subunit.

58. (Cancelled)

59. (Currently amended) A chimeric G-protein subunit which comprises an endogenous Gpa1 subunit having C and N terminal amino acids in which ~~at least~~ the last four to six C-terminal amino acids of said Gpa1 are replaced with ~~at least~~ the last four to six C-terminal

amino acids of a first heterologous G protein subunit, and in which the N-terminus of said Gpa1 is operably linked to ~~at least the first five~~ one to eleven N-terminal amino acids of a second heterologous G protein subunit, wherein said first and second heterologous G protein subunits are the same or different.

60. (Original) The chimeric G-protein subunit of claim 59, in which the last five C-terminal amino acids of said Gpa1 are replaced with the last five C-terminal amino acids of said first heterologous G-protein subunit, and in which the first five N-terminal amino acids of said Gpa1 are replaced with the first 11 N-terminal amino acids of said second heterologous G protein subunit.

61-119 (Cancelled).

120. (Previously presented) The yeast cell of claim 1 or 53, wherein an endogenous yeast pheromone receptor protein is not produced in functional form.

121. (Previously presented) The yeast cell of claim 1 or 53, further comprising an indicator gene that produces a detectable signal upon functional coupling of the heterologous G protein-coupled receptor to the G protein.

122. (Previously presented) The yeast cell of claim 1 or 53, wherein the yeast cell is a *Saccharomyces cerevisiae* cell.

123-131 (Cancelled)